

WHAT IS CLAIMED IS:

1. A distal protection device for use with a catheter during a vascular procedure comprising:

a tube having a proximal end and a distal end and a tube lumen extending therethrough;

an elongate wire extending through the tube lumen;

an expandable filter having proximal and distal ends, wherein at least one of the filter ends is fixedly attached to at least one of the distal end of the tube or the wire; and

an expandable occluder having a proximal end and a distal end positioned within the filter.

2. The distal protection device according to claim 1, wherein the occluder is a balloon.

3. The distal protection device according to claim 1, wherein the wire includes a flexible distal tip.

4. The distal protection device according to claim 1, wherein an inflation port is disposed adjacent a device proximal end and is in fluid communication with the tube lumen.

5. The distal protection device according to claim 1, wherein a proximal end of the wire is attached to a handle.

6. The distal protection device according to claim 1, further comprising:

a hollow push rod having proximal and distal ends and a rod lumen extending therethrough, the push rod being slidably disposed within the tube lumen and extending distally and proximally therefrom, wherein the

elongate wire slidably extends through the rod lumen, the filter proximal end is fixedly attached to the tube distal end, the filter distal end is fixedly attached to the push rod distal end, the occluder distal end is sealingly attached adjacent the push rod distal end, and the occluder proximal end is sealingly attached to the tube distal end such that an interior of the occluder is in fluid communication with the tube lumen.

7. The distal protection device according to claim 6, wherein the push rod proximal end is attached to a handle.

8. The distal protection device according to claim 1, further comprising:

a hollow push rod having a proximal end and a distal end and a rod lumen extending therethrough, wherein the push rod is slidably disposed within the tube lumen, the wire is slidably disposed within the rod lumen, the proximal end of the filter is fixedly attached to the distal end of tube, the distal end of the filter is fixedly attached to the wire, the proximal end of the occluder is fixedly attached to the distal end of the push rod, and the distal end of the occluder is fixedly attached to the wire.

9. The distal protection device according to claim 1, wherein the proximal end of the filter is fixedly attached to the distal end of the tube, the distal end of the filter is fixedly attached to the wire, the proximal end of the occluder is sealingly attached to the distal end of the tube such that an interior of the occluder is in fluid communication with the tube lumen, and a distal end of the occluder is sealingly attached to the wire.

10. The distal protection device according to claim 9, wherein the wire is slidable with respect to the tube.

11. The distal protection device according to claim 9, further comprising:

a second tube having a second lumen extending therethrough, wherein the first tube is disposed within the second lumen, expanding the occluder expands the filter, and advancing the second tube distally relative to the first tube causes the filter to collapse and to be captured within the second lumen.

12. A method for treating a vessel comprising:

introducing a distal protection device into the vessel, the distal protection device including an expandable filter and an expandable occluder disposed within the filter, wherein both the filter and the occluder are in a collapsed configuration;

positioning the distal protection device downstream of a treatment site;

introducing a therapeutic catheter into the vessel;

positioning the therapeutic catheter at the treatment site;

expanding the filter;

expanding the occluder;

treating the vessel at the treatment site;

collapsing the occluder;

collapsing the filter;

withdrawing the therapeutic catheter from the vessel; and

withdrawing the distal protection device from the vessel.

13. The method for treating a vessel according to claim 12, further comprising expanding the occluder subsequent to expanding the filter.

14. The method for treating a vessel according to claim 12, further comprising:

introducing an aspiration catheter into the vessel;
positioning a distal aspiration port of the aspiration catheter
near the occluder;
aspirating the vessel in the vicinity of the occluder; and
withdrawing the aspiration catheter from the vessel.